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10/561,620	03/06/2007	Karlheinrich Meisel	CH-8424LeA 36,763	9754
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EXAMINER				
MINSKEY, JACOB T				
ART UNIT		PAPER NUMBER		
1791				
NOTIFICATION DATE		DELIVERY MODE		
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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

usptopatentmail@cantorcolburn.com

### Office Action Summary

**Application No.**

10/561,620

**Applicant(s)**

MEISEL ET AL.

**Examiner**

JACOB T. MINSKEY

**Art Unit**

1791

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 21 May 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 2-23 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 2-23 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SI/02)  
Paper No(s)/Mail Date 05/21/2009
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### *Response to Arguments*

1. The Examiner acknowledges the cancellation of claim 1, the amendments to claims 2-8, 10-13, and 15, and the addition of claims 16-23.
2. The Objections to claims 3, 12-13, and 15 are withdrawn based off of the Applicant's amendments.
3. The 35 USC 101 and 112 second paragraph rejections of claims 1-8 and 10-11 are withdrawn due to the cancellation of claim 1 and the addition of claim 16, and the amendments to the claim language of the dependent claims.
4. **Applicant's arguments have been considered but are moot in view of the new ground(s) of rejection.**
5. Applicant traverses the anticipation rejection of claims 1-4, 6, 10-11, and 14-15 by Engle. Applicant argues that Engle does not teach the production of paper.
6. Additionally, Applicant argues that Engle does not teach the use of silica sols on order to increase the retention of the paper. In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., retention) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993). Neither old claim 1 nor new claim 16 requires that the retention of the pulp or paper is affected.

7. It is the Examiner's stance that Engle teaches a method that includes the use of silica sol as an addition to paper in order to treat the paper for oil and water resistance. This is considered to be part of the papermaking process. The newly added claim 16 includes the more specific limitations that the silica sol must be utilized to the aqueous cellulose suspension. This is a new limitation that will require a new search and new rejection that will be presented in the following sections. The remaining arguments are moot in view of these new limitations that necessitate a new search and rejection.

8. Applicant further traverses the anticipation rejection by Johansson. In addition to the reasons above, Applicant further argues that Johansson teaches a silica sol that utilizes sulfonic ion exchange ions and not sulfonic acid groups as claimed. As stated in the paragraph above, the presentation of new limitations in claim 16 renders the arguments moot in view of the new rejections presented in the following sections.

***Claim Rejections - 35 USC § 102/35 USC § 103***

9. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

11. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

12. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

**13. Claims 16, 2-4, 6-10, 12-15, 17-18, 20, and 23 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Wong Shing et al, USP 6,331,229.**

14. Regarding claims 16, 2-4, 9, and 18, Wong Shing teaches a process for the production of paper (column 1 lines 13-64, column 3 lines 38-60, and column 9 lines 28-38), characterized in that a silica sol containing sulfonic acid groups characterized in that silica sols used are those which have, bonded to a silicon atom, a group of the formula -B-(SO<sub>3</sub>M)<sub>p</sub> (AMPS, see example 2 and column 6 lines 31-35), and is added to

an aqueous cellulose suspension, and sheet formation, drainage and drying of the sheet are then carried out (inherent from the teachings of column 1 lines 13-64). The addition of both the silica sol and the AMPS would inherently create an additive matching the formula provided in these claims. In the alternative, it would have been obvious to one of ordinary skill in the art at the time of the invention that the addition of AMPS acid to the additive mixture would create a silica solution with the sulfonic groups as claimed for the benefit of improving the retention and strength of the pulp as taught in column 18 lines 65-67.

15. Regarding claims 5 and 12, Wong Shing further teaches that radicals are formed in the taught polymerization process (column 3 line 46), but is silent on specific formulations of the radicals that would be created. The radicals would inherently (or in the alternative be obviously) read on the provided formula because the AMPS acid would break down in a known fashion when bonding to the silica sol.

16. Regarding claims 6 and 10 and 20, Wong Shing further teaches that the silica sols have a mean particle size of less than 400 nm, determined by the TEM method (2-25 nm, column 10 line 1).

17. Regarding claim 7 Wong Shing further teaches that the silica sol is used in combination with cationic polymers as a microparticle system in paper production (column 18 lines 65-67).

18. Regarding claim 8, Wong Shing further teaches that that polyethylenimines, polyamidoamines, polyacrylamides, polyvinylamines, starch or guar flour is used as the cationic polymer (column 7 lines 43-57).

19. Regarding claims 13-14 and 23, Wong Shing further teaches a process for the preparation of the silica sols by reacting a silica sol with a compound containing SO<sub>3</sub>H (AMPS) in a reaction that has a water content of least 75% by weight (see example 2, 910.75 g of DI). The addition of both the silica sol and the AMPS would inherently create an additive matching the formula provided in these claims. In the alternative, it would have been obvious to one of ordinary skill in the art at the time of the invention that the addition of AMPS acid to the additive mixture would create a silica solution with the sulfonic groups as claimed for the benefit of improving the retention and strength of the pulp as taught in column 18 lines 65-67.
20. Regarding claim 15, Wong Shing further teaches a paper made by the sol of claim 10 (see abstract).
21. Regarding claim 17, Wong Shing further teaches that retention is improved by the addition of the silica sol (column 9 lines 39-45).

***Claim Rejections - 35 USC § 103***

22. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

- 23. Claims 11, 21, and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wong Shing et al, USP 6,331,229.**

24. Regarding claims 11, 21, and 22, Wong Shing further teaches that water soluble polymer will have a sulfate portion that can make up about 5-40 % by weight of the dispersion. While more precise numbers are not presented it would have been obvious to one of ordinary skill in the art at the time of the invention that the amount of sulfur in the dispersion as taught by Wong Shing would be within the claimed ranges.

Additionally, it would have been obvious to one of ordinary skill in the art at the time of the invention to have determined the optimum values of the relevant process parameter through routine experimentation in the absence of a showing of criticality (In re Aller, USPQ 233, CCPA 1955).

**25. Claims 16, 2-4, 7-9, and 17-19 are rejected under 35 U.S.C. 103(a) as obvious over Reiners et al, USP 6,090,871.**

26. Regarding claims 16 and 9, Reiners teaches a method of adding mercaptopropyl-methyldimethoxysilane to cellulose pulp as a finishing agent in the pulping process (column 29 lines 18-55 and preparation example of SP-1). While Reiners does not teach the additional steps of forming, draining, and drying the paper, it is obvious to one of ordinary skill in the art that these are the next process steps in the taught art of papermaking.

27. Regarding claims 2-4 and 17-19, Mercaptopropyl-methyldimethoxysilane is a silicone based compound that reads on the limitations of the dependent claims that are represented by the presented formula of  $-B-(SH)_p$  wherein  $B = (CH_2)_3$  and  $p = 1$ .



28. The formula from claim 2 utilized in this rejection is -B-(SH)<sub>p</sub> and does not include the variable M, so the further limiting of this variable in Claim 18 does not the rejection for it is listed as an alternative to -B-(SH)<sub>p</sub>.

29. Regarding claim 7 Reiners further teaches that the silica sol is used in combination with cationic polymers as a microparticle system in paper production (columns 29-30 and examples).

30. Regarding claim 8, Reiners further teaches that that polyethylenimines, polyamidoamines, polyacrylamides, polyvinylamines, starch or guar flour is used as the cationic polymer (columns 28-29).

### ***Conclusion***

31. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

32. USP 5,814,143 to Freeman et al teaches a reinforcing agent for paper that utilizes mercaptopropyltrimethoxysilane.

33. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not

mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JACOB T. MINSKEY whose telephone number is (571)270-7003. The examiner can normally be reached on Monday to Friday 7:30-5:00 EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Steven Griffin can be reached on 571-272-1189. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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JTM

/Eric Hug/  
Primary Examiner, Art Unit 1791